Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-4, 6-18 and 20-26 are pending in the application, with claims 1 and 15 being the independent claims. Claims 13 and 25 are sought to be cancelled without prejudice to or disclaimer of the subject matter therein. Claims 1, 3, 6 and 15 are sought to be amended. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Objections to the Claims

The Examiner has objected to claims 3 and 6 for informalities. Applicants have amended claims 3 and 6 to accommodate such informalities. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objection to claims 3 and 6.

Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1, 3, 4, 8, and 9 under 35 under 35 U.S.C. § 102(b) as being allegedly unpatentable over U.S. Patent No. 5,003,462 to Blaner *et al.* (hereinafter, "Blaner"). Applicants respectfully traverse this rejection.

Independent claim 1, as amended herein, is directed to a method for processing data using a plurality of processing engines, the method comprising:

> processing first data associated with a younger control record in a
> first processing engine;

processing second data associated with an older control record in a second processing engine;

generating an interrupt when the processing of the first data is completed if a first interrupt indicator in the younger control record is enabled and processing of the second data is completed;

moving the first interrupt indicator associated with the younger control record onto a second interrupt indicator associated with the older control record if processing of the first data completes before processing of the second data; and

generating an interrupt when the processing of the second data is completed if a second interrupt indicator in the older control record is enabled.

Blaner does not teach or suggest each and every one of the foregoing features of independent claim 1. For example, Blaner does not teach or suggest at least "generating an interrupt when the processing of the first data is **completed**" and "generating an interrupt when the processing of the second data is **completed**."

Blaner is directed to a method and apparatus for precisely reporting interrupts in a pipelined instruction processor. *See* Blaner, col. 2, lines 40-46. In non-pipelined processors, Blaner purports that precisely reporting interrupts is "readily achieved since at any given time there is only one instruction with which an interrupt could be associated" since each "instruction is executed in its entirety before another is started." *See* Blaner, col. 1, ll. 22-26. Blaner goes on to state:

> However, reporting interrupts precisely in a pipelined processor is much more difficult since many instructions may be **in various stages of execution** simultaneously. Thus, upon the occurrence of an interrupt, it may not be clear with which of the **currently executing** instructions - n, n+1, n+2, and so on—to associate with the interrupt.

(emphasis added). *See* Blaner, col. 1, ll. 30-33.

As is evident from the above, Blaner clearly does **not** generate an interrupt when the processing of data is **completed**, as claim 1 recites. In fact, Blaner is completely

directed to generating an interrupt when a fault or exception occurs during the execution of an instruction. Consequently, an interrupt in Blaner is issued when an instruction has **not** completed execution—which is in complete contrast to the features of claim 1. Blaner specifically states that an exception causes an interrupt and the "subsequent cancellation ... of the remainder" of the instruction that raised the exception. *See* Blaner, col. 6, ll. 52-56. Since instructions associated with interrupts in Blaner do not, in any way, **complete** execution or processing before an interrupt is issued, Blaner cannot anticipate claim 1.

In addition, Applicants submit that Blaner does not teach or suggest at least "moving the first interrupt indicator associated with the younger control record **onto** a second interrupt indicator associated with the older control record," as recited by claim 1 (emphasis added). Blaner may disclose multiple interrupts. *See* Blaner, col. 1, ll. 33-36. However, a first interrupt indicator associated with a younger control record is **not**, in any way, moved **onto** a second interrupt indicator associated with an older control record. Blaner at most describes sequencing multiple, received interrupts via their priorities and reporting the interrupts based on "the sequence". *See* Blaner, col. 6, ll. 40-44. However, sequencing of received interrupts does **not** entail moving a first interrupt indicator **onto** a second interrupt indicator (i.e., setting the second interrupt indicator to the value of the first interrupt indicator), as recited by claim 1.

The Examiner alleges that Blaner, at col. 5, line 41 to col. 6 line 44, and col. 8, line 62 to col. 9, line 30 teaches the above noted feature of claim 1. *See* present Office Action, page 6. However, applicants have thoroughly reviewed the cited portions of Blaner and find no teaching or suggestion of "moving the first interrupt indicator

associated with the younger control record **onto** a second interrupt indicator associated with the older control record if processing of the first data completes before processing of the second data," as recited by claim 1 (emphasis added). In the event that the Examiner maintains the rejection of independent claim 1 under 35 U.S.C. § 102(b), Applicants respectfully request that the Examiner, in the interests of compact prosecution, identify on the record and with specificity sufficient to support a case of anticipation, where in Blaner the above noted feature is alleged to be taught. Currently, the Examiner has failed to specifically identify where in Blaner the alleged anticipatory teaching is found.

Because Blaner does not teach each and every feature of claim 1, it cannot anticipate that claim. Dependent claims 3, 4, 8 and 9 are similarly not anticipated by Blaner for the same reasons as independent claim 1, from which they depend, and further in view of their own respective features. Accordingly, Applicants respectfully request that the rejection of claims 1, 3, 4, 8, and 9 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

Rejections under 35 U.S.C. § 103

Blaner in view of Pierson et al.

The Examiner has rejected claim 2 under 35 U.S.C § 103(a) as being allegedly unpatentable over Blaner in view of Pierson *et al.* (hereinafter, "Pierson"), "Context-Agile Encryption for High Speed Communications Networks," Computer Communications Review, Association for Computing Machinery, Vol. 29, No. 1, January 1999, pp. 35-49. Pierson does not in anyway remedy the deficiencies of Blaner

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with respect to independent claim 1, as discussed above. Consequently, the combination of Blaner and Pierson cannot render independent claim 1 obvious. Claim 2 is similarly not rendered obvious by the combination of Blaner and Pierson for the same reasons as independent claim 1, from which it depends, and further in view of its own respective feature. Accordingly, Applicants respectfully request that the rejection of claim 2 under 35 U.S.C § 103(a) be reconsidered and withdrawn.

Blaner in view of Yamaura

The Examiner has rejected claims 6, 7, and 10-14 under 35 U.S.C § 103(a) as being allegedly unpatentable over Blaner in view of U.S. Patent No. 6,175,890 to Yamaura (hereinafter, "Yamaura"). Yamaura does not in anyway remedy the deficiencies of Blaner with respect to independent claim 1, as discussed above. Consequently, the combination of Blaner and Yamaura cannot render independent claim 1 obvious. Claims 6, 7, 10-12 and 14 are similarly not rendered obvious by the combination of Blaner and Yamaura for the same reasons as independent claim 1, from which they depend, and further in view of their own respective features. Furthermore, dependent claim 13 has been canceled by the above amendment, thereby rendering the rejection of claim 13 moot. Accordingly, Applicants respectfully request that the rejection of claims 6, 7, and 10-14 under 35 U.S.C § 103(a) be reconsidered and withdrawn.

Nakaya in view of Yamaura

The Examiner has rejected claims 1, 3, 4, and 6-14 under 35 U.S.C § 103(a) as being allegedly unpatentable over U.S. Patent No. 5,978,830 to Nakaya et al.

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(hereinafter, "Nakaya") in view of Yamaura. For the reasons set forth below, Applicants respectfully traverse.

The combination of Nakaya and Yamaura does not teach or suggest each and every feature of claim 1, as amended herein. For example, Nakaya and Yamaura do not teach or suggest at least "generating an interrupt when the processing of the second data is completed if a second interrupt indicator in the older control record is enabled."

The Examiner, in the Response to Arguments section of the current Office Action, states:

> There is nothing in claim 1 that limits any delaying of an interrupt to occurring [*sic*] **only** when processing of the second data completes first, so whether Nakaya teaches additional delay features is insignificant regarding the claims of the current application.

See present Office Action, page 4. (emphasis in the original). Applicants note that the claimed feature "generating an interrupt when the processing of the second data is completed if a second interrupt indicator in the older control record is enabled," does not delay the issuance of an interrupt if processing of the first data has not completed. If the second interrupt indicator is enabled, and processing of the second data is complete, an interrupt is generated regardless of whether **all** data has finished processing (i.e., the first data). As a result, Nakaya not only fails to teach or suggest the above noted feature of claim 1, but **expressly** teaches away from claim 1, since Nakaya **only** issues an interrupt after **all** processors have completed their respective tasks. For this reason alone, Nakaya cannot teach or suggest claim 1.

Yamaura cannot possibly cure the deficiencies of Nakaya since the modification necessary to Nakaya would change the principle of its operation. In Nakaya, all processors executing in parallel **must** issue an interrupt when all processors have

completed their respective tasks, as explicitly agreed to by the Examiner on page 4 of the present Office Action. Therefore, even if Yamaura taught the feature "generating an interrupt when the processing of the second data is completed if a second interrupt indicator in the older control record is enabled," which applicants do not acquiesce to, it would be immaterial, since this modification would change a **principle operation** of Nakaya—the issuance of an interrupt only when **all** parallel processors have completed their respective tasks. As noted in the MPEP § 2143.01(VI), if the proposed modification to a reference would change that references principle operation, "then the teachings of the references are not sufficient to render the claims *prima facie obvious*" (emphasis in the original).

Consequently, the combination of Nakaya and Yamaura cannot render independent claim 1 obvious. Claims 3, 4, 6-12 and 14 are similarly not rendered obvious by the combination of Nakaya and Yamaura for the same reasons as independent claim 1, from which they depend, and further in view of their own respective features. Furthermore, dependent claim 13 has been canceled by the above amendment, thereby rendering the rejection of claim 13 moot. Accordingly, Applicants respectfully request that the rejection of claims 1, 3, 4, and 6-14 under 35 U.S.C § 103(a) be reconsidered and withdrawn.

Nakaya in view of Yamaura, further in view of Pierson

The Examiner has rejected claims 2, 15-18, and 20-26 under 35 U.S.C § 103(a) as being allegedly unpatentable over Nakaya in view of Yamaura, and further in view of Pierson. For the reasons set forth below, Applicants respectfully traverse.

Claim 2

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Pierson does not in anyway remedy the deficiencies of Nakaya and Yamaura with respect to independent claim 1, as discussed above. Consequently, the combination of Nakaya and Yamaura cannot render independent claim 1 obvious. Claim 2 is similarly not rendered obvious by the combination of Nakaya, Yamaura, and Pierson for the same reasons as independent claim 1, from which it depends, and further in view of its own respective features. Accordingly, Applicants respectfully request that the rejection of claim 2 under 35 U.S.C § 103(a) be reconsidered and withdrawn.

Claims 15-18, and 20-26

Independent claim 15 is directed to a cryptography accelerator that includes generating an interrupt "when processing of the second control record completes if a second interrupt indicator is associated with the second control record is enabled." As noted above in regard to claim 1, Nakaya does not teach or suggest at least this feature. Yamaura and Pierson do not cure the deficiencies of Nakaya. Consequently, the combination of Nakaya, Yamaura, and Pierson cannot render independent claim 15 obvious. Claims 16-18, 20-24 and 26 are similarly not rendered obvious by the combination of Nakaya, Yamaura, and Pierson for the same reasons as independent claim 15, from which they depend, and further in view of their own respective features. Furthermore, dependent claim 25 has been canceled by the above amendment, thereby rendering the rejection of claim 25 moot. Accordingly, Applicants respectfully request that the rejection of claims 15-18 and 20-26 under 35 U.S.C § 103(a) be reconsidered and withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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